

PAGE: 1

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/249,011DATE: 08/02/1999
TIME: 12:09:27

Input Set: I249011.RAW

This Raw Listing contains the General Information
Section and up to first 5 pages.

ENTERED

1 <110> APPLICANT: Co, Man Sung
2 Vasquez, Maximiliano
3 Carreno, Beatriz
4 Celniker, Abbie Cheryl
5 Collins, Mary
6 Goldman, Samuel
7 Gray, Gary S.
8 Knight, Andrea
9 O'Hara, Denise
10 Rup, Bonita
11 Veldman, Geertruida M.
12 <120> TITLE OF INVENTION: HUMANIZED IMMUNOGLOBULIN REACTIVE WITH
13 B7-2 AND METHODS OF TREATMENT THEREWITH
14 <130> FILE REFERENCE: GI-5315
15 <140> CURRENT APPLICATION NUMBER: US/09/249,011
16 <141> CURRENT FILING DATE: 1999-02-12
17 <160> NUMBER OF SEQ ID NOS: 20
18 <170> SOFTWARE: FastSEQ for Windows Version 3.0
19 <210> SEQ ID NO 1
20 <211> LENGTH: 405
21 <212> TYPE: DNA
22 <213> ORGANISM: Murine anti-B7-2 heavy chain
23 <220> FEATURE:
24 <221> NAME/KEY: CDS
25 <222> LOCATION: (1)...(405)
26 <223> OTHER INFORMATION:
27 <400> SEQUENCE: 1
28 atg ggt tgg aac tgt atc atc ttc ttt ctg gtt aca aca gct aca ggt 48
29 Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
30 1 5 10 15
31 gtg cac tcc cag gtc cag ctg cag cag tct ggg cct gag ctg gtg agg 96
32 Val His Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Arg
33 20 25 30
34 cct ggg gaa tca gtg aag att tcc tgc aag ggt tcc ggc tac aca ttc 144
35 Pro Gly Glu Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe
36 35 40 45
37 act gat tat gct ata cag tgg gtg aag cag agt cat gca aag agt cta 192
38 Thr Asp Tyr Ala Ile Gln Trp Val Lys Gln Ser His Ala Lys Ser Leu
39 50 55 60
40 gag tgg att gga gtt att aat att tac tat gat aat aca aac tac aac 240
41 Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
42 65 70 75 80
43 cag aag ttt aag ggc aag gcc aca atg act gta gac aaa tcc tcc agc 288
44 Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser

PAGE: 2

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/249,011

 DATE: 08/02/1999
 TIME: 12:09:27

Input Set: I249011.RAW

```

45              85              90              95
46  aca gcc tat atg gaa ctt gcc aga ttg aca tct gag gat tct gcc atc      336
47  Thr Ala Tyr Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile
48              100              105              110
49  tat tac tgt gca aga gcg gcc tgg tat atg gac tac tgg ggt caa gga      384
50  Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
51              115              120              125
52  acc tca gtc acc gtc tcc tca      405
53  Thr Ser Val Thr Val Ser Ser
54              130              135
55 <210> SEQ ID NO 2
56 <211> LENGTH: 135
57 <212> TYPE: PRT
58 <213> ORGANISM: Murine anti-B7-2 heavy chain
59 <400> SEQUENCE: 2
60  Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
61      1              5              10              15
62  Val His Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Arg
63      20              25              30
64  Pro Gly Glu Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe
65      35              40              45
66  Thr Asp Tyr Ala Ile Gln Trp Val Lys Gln Ser His Ala Lys Ser Leu
67      50              55              60
68  Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
69      65              70              75              80
70  Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser
71      85              90              95
72  Thr Ala Tyr Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile
73      100              105              110
74  Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
75      115              120              125
76  Thr Ser Val Thr Val Ser Ser
77      130              135
78 <210> SEQ ID NO 3
79 <211> LENGTH: 396
80 <212> TYPE: DNA
81 <213> ORGANISM: Murine anti-B7-2 light chain
82 <220> FEATURE:
83 <221> NAME/KEY: CDS
84 <222> LOCATION: (1)...(396)
85 <400> SEQUENCE: 3
86  atg gat tca cag gcc cag gtt ctt ata ttg ctg ctg cta tgg gta tct      48
87  Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
88      1              5              10              15
89  ggt acc tgt ggg gac att gtg ctg tca cag tct cca tcc tcc ctg gct      96
90  Gly Thr Cys Gly Asp Ile Val Leu Ser Gln Ser Pro Ser Ser Leu Ala
91      20              25              30
92  gtg tca gca gga gag aag gtc act atg agc tgc aaa tcc agt cag agt      144
93  Val Ser Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
94      35              40              45

```

PAGE: 3

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/249,011

DATE: 08/02/1999
TIME: 12:09:27

Input Set: I249011.RAW

```

95      ctg ctc aac agt aga acc cga gag aac tac ttg gct tgg tac cag cag      192
96      Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
97          50                      55                      60
98      aaa cca ggg cag tct cct aaa ctg ctg atc tac tgg gca tcc act agg      240
99      Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
100         65                      70                      75                      80
101     gaa tct ggg gtc cct gat cgc ttc aca ggc agt gga tct ggg aca gat      288
102     Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
103                85                      90                      95
104     ttc act ctc acc atc agc agt gtg cag gct gaa gac ctg gca gtt tat      336
105     Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
106                100                      105                      110
107     tac tgc acg caa tct tat aat ctt tac acg ttc gga ggg ggg acc aag      384
108     Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys
109                115                      120                      125
110     ctg gaa ata aaa      396
111     Leu Glu Ile Lys
112         130
113 <210> SEQ ID NO 4
114 <211> LENGTH: 132
115 <212> TYPE: PRT
116 <213> ORGANISM: Murine anti-B7-2 light chain
117 <400> SEQUENCE: 4
118     Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
119         1          5          10          15
120     Gly Thr Cys Gly Asp Ile Val Leu Ser Gln Ser Pro Ser Ser Leu Ala
121                20          25          30
122     Val Ser Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
123                35          40          45
124     Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
125                50          55          60
126     Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
127                65          70          75          80
128     Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
129                85          90          95
130     Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
131                100         105         110
132     Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys
133                115         120         125
134     Leu Glu Ile Lys
135         130
136 <210> SEQ ID NO 5
137 <211> LENGTH: 405
138 <212> TYPE: DNA
139 <213> ORGANISM: Humanized murine anti-human B7-2 heavy chain
140 <220> FEATURE:
141 <221> NAME/KEY: CDS
142 <222> LOCATION: (1)...(405)
143 <400> SEQUENCE: 5
144     atg ggt tgg aac tgt atc atc ttc ttt ctg gtt acc aca gct aca ggt      48

```

PAGE: 4

RAW SEQUENCE LISTING PATENT APPLICATION US/09/249,011

DATE: 08/02/1999
TIME: 12:09:27

Input Set: I249011.RAW

```

145      Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
146      1              5              10              15
147      gtg cac tcc cag gtc cag ctg gtg cag tct ggg gct gag gtg aag aag      96
148      Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
149              20              25              30
150      cct ggg agc tca gtg aag gtg tcc tgc aaa gct tcc ggc tac aca ttc      144
151      Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
152              35              40              45
153      act gat tat gct ata cag tgg gtg aga cag gct cct gga cag ggc ctc      192
154      Thr Asp Tyr Ala Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
155              50              55              60
156      gag tgg att gga gtt att aat att tac tat gat aat aca aac tac aac      240
157      Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
158              65              70              75              80
159      cag aag ttt aag ggc aag gcc aca atg act gta gac aag tcg acg agc      288
160      Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Thr Ser
161              85              90              95
162      aca gcc tat atg gaa ctt agt tct ttg aga tct gag gat acg gcc gtt      336
163      Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
164              100              105              110
165      tat tac tgt gca aga gcg gcc tgg tat atg gac tac tgg ggt caa ggt      384
166      Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
167              115              120              125
168      acc ctt gtc acc gtc tcc tca      405
169      Thr Leu Val Thr Val Ser Ser
170              130              135
171 <210> SEQ ID NO 6
172 <211> LENGTH: 135
173 <212> TYPE: PRT
174 <213> ORGANISM: Humanized murine anti-human B7-2 heavy chain
175 <400> SEQUENCE: 6
176      Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
177      1              5              10              15
178      Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
179              20              25              30
180      Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
181              35              40              45
182      Thr Asp Tyr Ala Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
183              50              55              60
184      Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
185              65              70              75              80
186      Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Thr Ser
187              85              90              95
188      Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
189              100              105              110
190      Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
191              115              120              125
192      Thr Leu Val Thr Val Ser Ser
193              130              135
194 <210> SEQ ID NO 7

```

PAGE: 5

RAW SEQUENCE LISTING
 PATENT APPLICATION US/09/249,011

DATE: 08/02/1999

TIME: 12:09:27

Input Set: I249011.RAW

```

195 <211> LENGTH: 396
196 <212> TYPE: DNA
197 <213> ORGANISM: Humanized murine anti-human B7-2 light chain
198 <220> FEATURE:
199 <221> NAME/KEY: CDS
200 <222> LOCATION: (1)...(396)
201 <400> SEQUENCE: 7
202   atg gat tca cag gcc cag gtt ctt ata ttg ctg ctg cta tgg gta tct      48
203   Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
204     1             5             10             15
205   ggc acc tgt ggg gac att gtg ctg aca cag tct cca gat tcc ctg gct      96
206   Gly Thr Cys Gly Asp Ile Val Leu Thr Gln Ser Pro Asp Ser Leu Ala
207             20             25             30
208   gta agc tta gga gag agg gcc act att agc tgc aaa tcc agt cag agt     144
209   Val Ser Leu Gly Glu Arg Ala Thr Ile Ser Cys Lys Ser Ser Gln Ser
210             35             40             45
211   ctg ctc aac agt aga acc cga gag aac tac ttg gct tgg tac cag cag     192
212   Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
213             50             55             60
214   aaa cca ggg cag cct cct aaa ctg ctg atc tac tgg gca tcc act agg     240
215   Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
216             65             70             75             80
217   gaa tct ggg gtc cct gat cgc ttc agt ggc agt gga tct ggg aca gat     288
218   Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
219             85             90             95
220   ttc act ctc acc atc agc agt ctg cag gct gaa gac gtg gca gtt tat     336
221   Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr
222             100            105            110
223   tac tgc acg caa tct tat aat ctt tac acg ttc gga cag ggg acc aag     384
224   Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gln Gly Thr Lys
225             115            120            125
226   gtg gaa ata aaa                                           396
227   Val Glu Ile Lys
228             130
229 <210> SEQ ID NO 8
230 <211> LENGTH: 132
231 <212> TYPE: PRT
232 <213> ORGANISM: Humanized murine anti-human B7-2 light chain
233 <400> SEQUENCE: 8
234   Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
235     1             5             10             15
236   Gly Thr Cys Gly Asp Ile Val Leu Thr Gln Ser Pro Asp Ser Leu Ala
237             20             25             30
238   Val Ser Leu Gly Glu Arg Ala Thr Ile Ser Cys Lys Ser Ser Gln Ser
239             35             40             45
240   Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
241             50             55             60
242   Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
243             65             70             75             80
244   Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp

```

PAGE: 6

VERIFICATION SUMMARY
PATENT APPLICATION US/09/249,011

DATE: 08/02/1999
TIME: 12:09:27

Input Set: I249011.RAW

Line ? Error/Warning

Original Text
